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Manufacturing from Scratch

Jennifer Lee Hosker
Worcester Polytechnic Institute

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A Major Qualifying Project Report
submitted to the Faculty
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By

Jennifer L. Hosker
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Professor Chris Brown

Professor Sharon Johnson

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Abstract

This project encompasses everything I have learned as a manufacturing engineering student at Worcester Polytechnic Institute. I have created a fictional business for the Lego Technic Quad Bike and designed the facility layout and other elements required for a successful business entity. These include employee profiles and a safety plan for the facility. The end result is a factory modeled in AutoCad, a physical model of the factory made from Legos, a model of the Lego Technic Quad Bike, and all of the appropriate graphs, diagrams and charts needed to fully explain this facility and everything needed to run it.

Introduction

For my Major Qualifying Project I have used all of my knowledge gathered as a manufacturing engineering student. I created a business from scratch for the Lego Technic Quad Bike. I started from scratch and built a complete business that is ready to run. This project is a fitting Major Qualifying Project for a manufacturing engineer looking to go into management of manufacturing engineering.

I am presenting this project in several ways. I have designed a complete factory layout in AutoCad. I have fabricated a physical representation of the factory out of Legos and I built the model of the Lego Technic Quad Bike.

This project will be able to be used as a reference by other students in the future.

Project Objective

The objective of this project is to create a detailed case study of the design of a viable manufacturing enterprise integrating technical and business aspects demonstrating the process to achieve this from start to finish. This will be accomplished with the creation of a fictional business and will include a facility layout, a safety plan, employee requirements, a model of the factory in AutoCad, a model of the factory in Legos, and a model of the product in Legos.

The purpose of this project is to prove that a student can create a viable manufacturing company. To my knowledge this is the first project of this nature completed at WPI. It can be used as a model for other students hoping to create a manufacturing company from scratch. It is crucial that key issues of building and running a manufacturing company be addressed at the beginning. "Manufacturing and service companies spend a significant amount of time and money in designing and re-designing their facilities. It is an extremely important function that must be addressed before products are produced or services rendered. A poor design costs a company a significant amount and results in poor quality, low employee morale and customer dissatisfaction." (Heragu, 2006, p.vii) This project addresses the point that building a manufacturing company is a fluid process. Making one change can force you to make a dozen other changes. It is important to finalize everything on paper before construction begins to ensure that you do not get half way through and find you need to make changes.

Background

Legos: The Real Story

The History

Invented in 1932, Legos are an amazing toy with an amazing story. The term "Lego" was coined from the Danish phrase *leg godt*, which means "play well". (http://en.wikipedia.org/wiki/Lego)

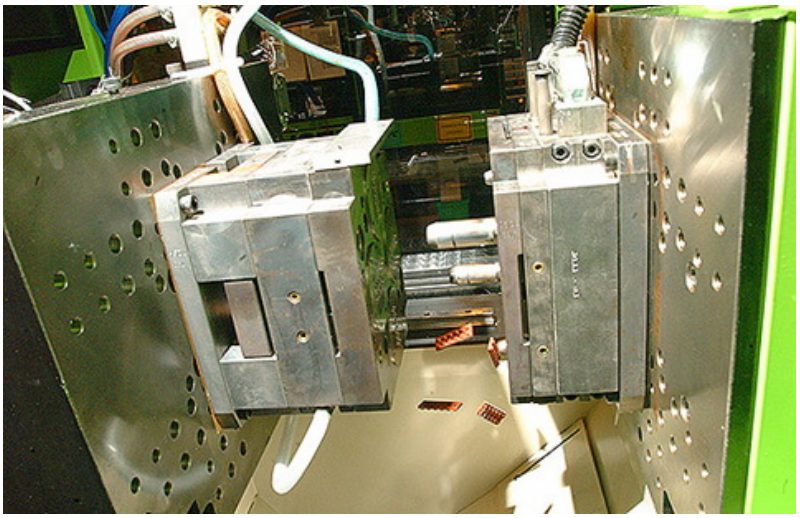
Beginning with wooden toys, Kirk Christiansen ran the company from 1932 till his death in 1958. At this point his son, Godtfred Kirk Christiansen, took over and the Lego brick as we know it came into existence. In fact, bricks from today will interlock perfectly with bricks from 1958. This is just one example of their impeccable quality standards. Lego is famous for their remarkably tight quality controls. According to "The Making of a Lego Brick", only eighteen out of one million bricks are defective. This is an incredible achievement in quality considering that fifteen billion Lego components are produced each year.

The Making of a Lego Brick

Lego bricks begin as granulated Acrylonitrile Butadiene Styrene (ABS), "a type of shiny plastic used to make everything from hard hats to toys to pipes." (The Making of a Lego Brick, slide 2)

The ABS is vacuumed out of silos containing twenty-eight tons of this material, and sent to the molding machines where they are melted at a temperature of 449.6 degrees Fahrenheit. This process is mostly automated due to the intense temperatures.

"The melted ABS is struck at a pressure of 25 tons to 150 tons – depending on the type of brick being made – with metal molds." (The Making of a Lego Brick, slide 5) The intense force is crucial to the molding process to ensure that the bricks are accurately shaped.



The cooling bricks are dropped onto a conveyer and continue cooling while they move down the line.

They are then dropped into bins called “p-boxes” used to store bricks of the same color and size.

The “p-boxes” are then scanned and labeled based on the type of brick or piece inside. They move down a conveyor belt and are met by a robot. After the “p-boxes” are filled, labeled, and scanned they are stored by a robot until they are needed to put together a full Lego set.

Lego Decorating and Assembly

The assembly halls average one or two people per machine; far more populous than the molding halls which average one person for every thirty-two machines. (The Ultimate Lego Book) The assembly stations handle everything from painting the heads and torsos of the Lego minifigures, to attaching wheels to axles, to printing specialized Lego tiles.

Packaging the Legos

"The Lego Group has invested heavily in special machinery made by Lego Engineering in Billund, Denmark to solve" the problem of kits going out with missing pieces. (The Ultimate Lego Book) Packaging is mostly automated, however the operators are in charge of visually making sure "final packed displays" are done correctly. Some "displays" are packed manually. One operator can pack up to 100 "displays" per hour.

The Product

The Box

Instruction Manuals

The Parts

Tires And Bag 1

Bag 2

Bag 3 and Bag 4

Toy Option 1: Quad Bike

Toy Option 2: 3-Wheel Chopper

The product this business produces is the Lego Technic Quad Bike 8282. The same kit can also be assembled into a Three-Wheeled Chopper. The retail price of this unit is $24.99. The kit contains 200 pieces in four bags with four tires outside of the bags and two instruction manuals. It's designed for 8 to 14 year olds. It takes an experienced builder approximately 40 minutes to put together the Quad Bike and approximately 35 minutes to put together the Three-Wheeled Chopper. I chose this project because I love Legos myself and they are very popular with children of all ages so I am confident that this product would sell extremely well.

Methods, Results, and Discussion

Choosing the Product

I grew up playing with Legos and decided that they would be the perfect product for my factory because not only are they fun, there is a large market for them as well. Lego is a multi-million dollar a year business, according to the European Weekly, and the Lego Technic line is extremely popular, so I feel that choosing a Lego product for my project makes both manufacturing and financial sense.

The Process

I started by purchasing the product from Toys R Us and taking a careful look at the packaging, the division of parts, the quantity of each type of piece, etc. I took pictures of the product and its pieces and eventually built the toy itself. I timed roughly how long it took to build the product with no distractions. I consider myself to be an experienced Lego builder; the novice may take longer for assembly.

Offices

I started dealing with the offices section of the factory by making a list of the offices that would be necessary including the Nurse's Office, the meeting rooms, lunch room, cafeteria, restrooms, locker rooms, etc. I cross-referenced this with the chapter

from Heragu's Facilities Design textbook on code compliance, OSHA and ADA regulations.

These regulations provide guidelines for facilities such as the size of locker rooms, the number of restrooms required, etc.

For a complete blueprint of the offices and facilities, please see appendix D.

Departments

I began my department list with the basics: shipping and receiving, quality, etc. Then I took a look at the colored plastic the parts are made from and began to divide them up into different departments based on color. This allows for minimal tubing overhead for the delivery of plastic pellets. This is important for lean manufacturability. There was some final tweaking done after the layout had been roughed out.

The departments are as follows:

Department List

Dept #	Description

Dept 1	**Storage**
Section A	Plastic Pellet Storage (12 colors)
Section B	Rubber Pellet Storage
Section C	Bag storage (With and without holes)
Section D	Spare Part Storage
Section E	Instruction Manual Storage
Section F	Box Storage
Section G	Spring Storage for 4265688
Section H	Finalized Product Storage Before Shipping
Dept 2	**Quality**
Dept 3	**Shipping and Receiving**
Dept 4	**Assembly**
Section A	Assembly (Bag 1)
Section B	Assembly (Bag 2)
Section C	Assembly (Bag 3)
Section D	Assembly (Bag 4)
Section E	Assembly Complete Package
Dept 5	**Molding**
Dept 6	**Molding**
Dept 7	**Molding**
Dept 8	**Molding**
Dept 9	**Molding**
Dept 10	**Molding**
Dept 11	**Molding**
Dept 12	**Molding**
Dept 13	**Assembly**
Dept 14	**Emergency Controls (Back up)**

For a complete department listing, including part numbers, please see appendix A.

Bags, Boxes, and Instruction Manuals

The bags, boxes, and instruction manuals are outsourced for financial reasons. It would not be reasonable financially to buy and operate the necessary equipment in-house to print the manuals and boxes or make the bags.

Machine Size

Using pictures of the injection molding machines featured in pictures of the Lego factories in the book The World of Lego Toys, I estimated the size of the machine by comparing it to the size of the people standing next to it. This gave me a reasonable idea of how much space to allow for my machines.

The actual mechanics of each machine requires roughly five feet by five feet of space with another five foot by five foot square of space required for the bin that catches the completed bricks. The machines are approximately six feet tall. They require a minimum of five feet of space on all sides for safety reasons.

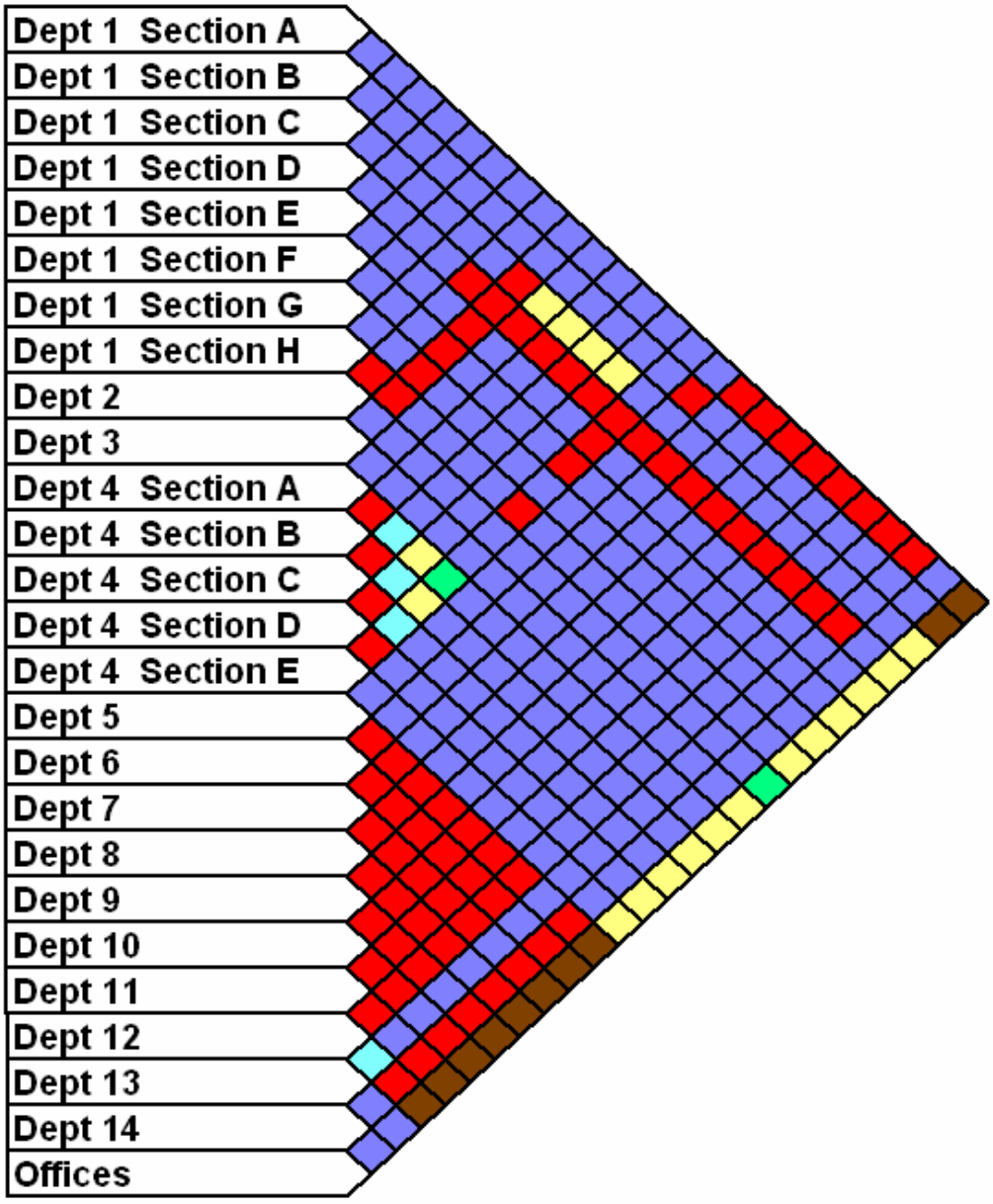
Number of Machines

The number of machines was determined by the number of different kinds of pieces in the Lego kit. I determined that there needs to be one machine for every individual kind of piece to eliminate wasted time changing plastic pellet feed lines or cleaning molds to switch colors or switch molds. (This deals with the principles of Lean Manufacturing.) Part 4265688 requires two machines as it is comprised of two separate plastic pieces and a spring. This results in sixty-two separate injection molding machines.

Factory Layout

I began the design of the factory layout by doing a relationship diagram. For information on how to read a Relationship Chart, please see appendix C.

Relationship Chart



	Must be together
	Should be together
	Would be nice to be together
	Not very important to be together
	Doesn't have to be together
	Can't be together

Creating the Relationship Chart allowed me to see which departments belong together and which departments cannot go together. This was an invaluable tool for designing my layout. I then began sketching rough layouts until I found one that fit my criteria to my satisfaction. (Sometimes it is possible to find a perfect layout, at other times you have to go with the best possible layout.)

Next I began to figure out the size of the departments and the size of the aisles. I chose to make the aisles ten feet wide in most places to allow for forklift traffic. I then allowed for a pathway from shipping and receiving to the silos of plastic and rubber pellets that is fifteen feet wide for safety reasons. This is because the forklifts will have to traverse through the injection molding area which is subject to high temperatures and pressures.

I considered splitting the Shipping and Receiving department into two departments and putting the receiving part closer to the silos. I decided against this for several reasons. I found that this made it incredibly difficult to do a layout without wasted space. It would also require extra loading docks and bay doors. I also noted that the silos are very large and would not have to be filled very often. I allowed for safe travel between shipping and the silos with a fifteen foot wide aisle.

Using the Relationship Chart, I noted that the molding area had to be separated from the assembly stations as well as the offices. This is due to the extreme temperatures and pressures required for molding.

I accounted for lunch time in the summer with an outside area of grass with picnic tables. This is shown as the green area in the Factory Floor Layout Image of Appendix F. This same image also shows the black area outside of the factory walls, which represents

the parking lot. (Not all of the parking lot is visible on this model. It extends further to the right along the entire right side of the model, continuing in the middle where the grass stops.) This lot has seventy-two regular parking spaces and eight handicapped spaces. This is based on the number of employees, with extra for clients, inspectors, and other visitors.

To see the final layout, go to appendix D.

Silo Colors

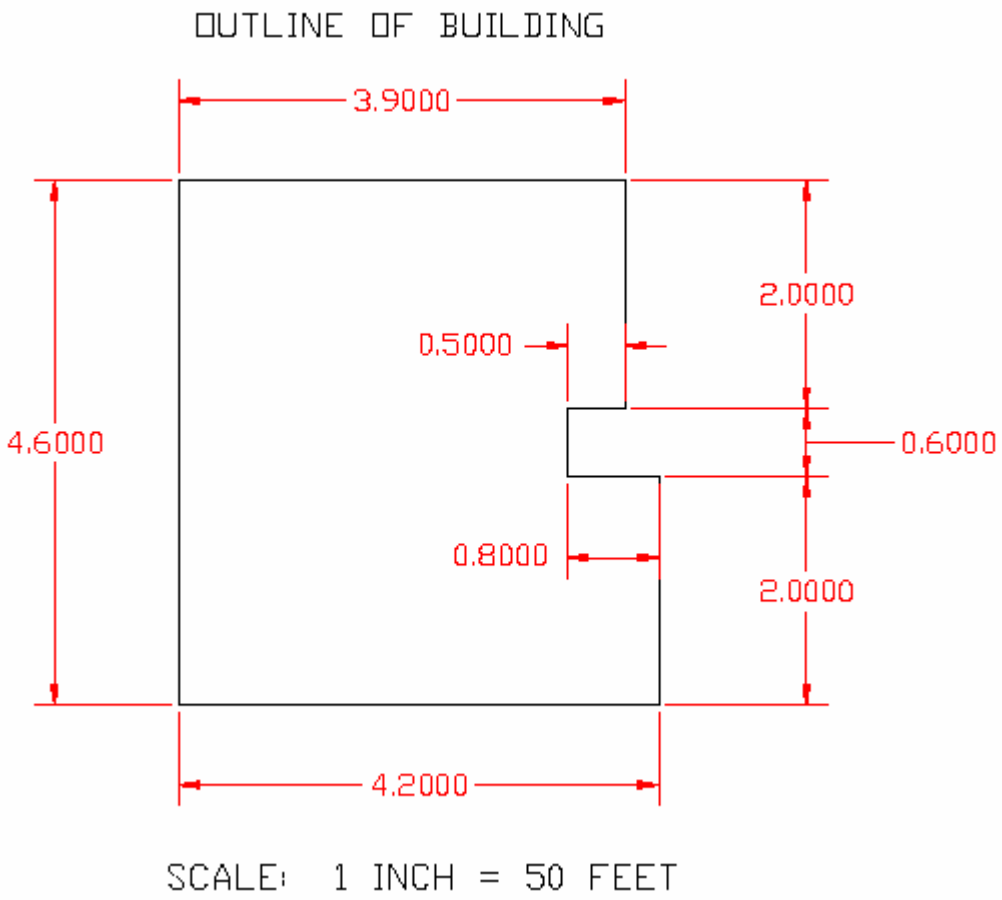
Silo colors were determined using lean principles. The goal was to minimize overhead tubing. I began by looking at the colors of the parts in different departments and putting that color silo as close as possible, thus minimizing wasted feet of tubing. For example, having silver parts on opposite sides of the factory would require tubing from the silver silo to each injection molding machine using silver. This could potentially waste hundreds of feet of overhead tubing. Working with this system, I was able to assign all of the silos to minimize waste.

Silo #	Brick Color
1	silver
2	bright blue
3	bright yellow
4	white
5	black
6	orange
7	red
8	dark stone
9	light grey
10	clear
11	brick yellow

Building Size

When it came time to figure out the building size, I had to take into consideration the number of departments, the size of the departments, the size of the aisles, the size of the machines, etc.

First I determined the size needed for each department, and created a rough layout. This gave me a rough factory size. After tweaking the layout I was able to come up with the final facility size.



Number of Employees

Based on number of departments, number of machines, number of offices, etc., I made my decisions on the number of employees required, factoring in my own

experience from working in several manufacturing facilities as well. Also, according to The Ultimate Lego Book, two people are needed for every sixty-four injection molding machines to monitor them. With this information, the employee numbers I came up with are as follows:

Location	#	Function
Nurse's Office	1	Nurse
Dept 13	5	Assembly
Dept 2	1	Head of Quality
Dept 2	2	Quality
Dept 4-A	8	Assembly
Dept 4-B	8	Assembly
Dept 4-C	8	Assembly
Dept 4-D	8	Assembly
Dept 4-E	8	Assembly
Dept 3	1	Head of Shipping and Receiving
Dept 3	4	Shipping and Receiving
Offices	1	Shop Foreman
	1	Plant Manager
	2	Molding Operations Manager
	1	Customer Service
	1	Secretary
Total	60	

The next step was to write up the employee requirements. Using www.monster.com and my own knowledge of the industry as references, I created employee profiles in the form of ads that could run in the newspaper or online.

To read the employee requirements, please see appendix G.

Safety Plan

With the factory designed, the next step was to create a safety plan for the factory. I began by asking myself what types of emergencies or potential situations could arise and developed a solution for each of these problems. The following is a list of problems that may occur in the factory and solutions for these problems:

Safety Plan

Problem	**Solution**
Potential Injury	Nurse's Station
Potential Fire	Fire Extinguishers
Power Outage	Emergency Lights and Neon Exit Signs
Molding Machine Emergency	Emergency Controls on Factory Floor and in Office
High Temperature and Pressure in Molding Area	Sprinklers Overhead and Emergency Automatic Shut Off Valves, Fence to Separate Molding Area from Assembly Stations and Offices
Walking Too Close to the Machines	Walkways Around the Machines and Marked Off Safety Areas
Slipping Issues	Grip Tape on the Floor
Eye Safety	Eye Wash Stations, Safety Glasses
Hearing Safety	Ear Plugs
Conveying Important Information during an Emergency	Loud Speakers
Back and Joint Problems	Ergonomics
Minor Injuries	First Aid Kits
Chemical Issues	Material Safety and Data Sheets Posted
Emergency Evacuation	Emergency Evacuation Plan
Emergency Phone Calls Needed	Emergency Phones and Phone Numbers Posted

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http://www.neurope.eu/articles/83169.php, 4/18/08.

Customer Service Rep-
http://jobview.monster.com/GetJob.aspx?JobID=68809502&JobTitle=Customer+Service+Representative++Customer+Service+Representative&q=customer+service&brd=1&cy=US&vw=b&AVSDM=2008-02-20+15%3a47%3a00&pg=1&seq=1,2/20/08.

Head of Shipping and Receiving-
http://jobview.monster.com/GetJob.aspx?JobID=68349529&JobTitle=Shipping+%26+Recieving+Suppervisor&q=shipping+aqnd+recieving&brd=1&cy=US&vw=b&AVSDM=2008-02-12+15%3a47%3a00&pg=1&seq=3,2/20/08.

Molding Supervisor-
http://jobview.monster.com/GetJob.aspx?JobID=67977325&JobTitle=Injection+Molding+Shift+Supervisor&q=molding+supervisors&brd=1&cy=US&vw=b&AVSDM=2008-01-30+15%3a20%3a00&pg=1&seq=29,2/20/08.

Nurse- http://jobview.monster.com/GetJob.aspx?JobID=68292022&JobTitle=Occupational+Nurse&q=manufacturing+nurse&brd=1&cy=US&vw=b&AVSDM=2008-02-07+13%3a54%3a00&pg=1&seq=25,2/20/08.

Plant Manager-
http://jobview.monster.com/GetJob.aspx?JobID=67534126&JobTitle=Manufacturing+Manager%2c+Plant+Manager&q=plant+manager&brd=1&cy=US&vw=b&AVSDM=2008-01-18+13%3a23%3a00&pg=1&seq=27,2/20/08.

Quality-
http://jobview.monster.com/GetJob.aspx?JobID=68712847&JobTitle=SR+Quality+Tech&q=senior+quality&brd=1&cy=US&pg=2&vw=b&AVSDM=2008-02-18+18%3a41%3a00&seq=25,2/20/08.

Secretary-
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Senior Quality Engineer-
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Lego Molds-

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Scanned and Labeled-

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Technic Logo-
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Table of Appendices

Appendix A

Department Listings

Department List	Description	Assembly Station	Color	Size (not including walkways)
Dept 1	**Storage**			
Section A	Plastic Pellet Storage (12 colors)			10 x 10 each
Section B	Rubber Pellet Storage			10 x 10
Section C	Bag storage (With and without holes)			10 x 10
Section D	Spare part Storage			75 x 15
Section E	Instruction Manual Storage			10 x 10
Section F	Box Storage			10 x 10
Section G	spring storage for 4265688			10 x 10
Section H	finalized product storage before shipping			15 x 35
Dept 2				15 x 35
	Quality			
Dept 3				25 x 55
	Shipping and Receiving			
Dept 4	**Assembly**			
Section A	Assembly (Bag 1)			20 x 15
Section B	Assembly (Bag 2)			20 x 15
Section C	Assembly (Bag 3)			20 x 15
Section D	Assembly (Bag 4)			20 x 15
Section E	Assembly Complete Package			20 x 15
Dept 5				15 x 15
	658126	E	black rubber	
Dept 6				15 x 105
	4249040	B	silvery	
	4275389	D	silvery	
	4275333	D	silvery	
	4128555	A	bright blue	
	4144300	A	bright blue	
	4158923	A	bright blue	
	4168114	A	bright blue	
	4185662	C	bright blue	
	4144283	C	bright blue	
	4206482	D	bright blue	
Dept 7				15 x 105
	4173987	D	bright blue	

	4143093	D	bright blue
	4144300	D	bright blue
	4239601	B	bright yellow
	4119474	D	bright yellow
	4112203	D	bright yellow
	4193785	A	white
	306901	D	white
	4265688-2	A	black
	4111998	A	black

Dept 8				15 x 105
	373726	A	black	
	4121715	B	black	
	371126	B	black	
	4142543	C	black	
	4140430	C	black	
	4162857	C	black	
	4142822	C	black	
	4121667	C	black	
	4156980	C	black	
	4142236	C	black	

Dept 9				15 x 105
	4107783	C	black	
	370526	C	black	
	370626	C	black	
	4107828	D	black	
	655826	D	black	
	4113805	D	black	
	4107085	D	black	
	4177444	D	black	
	4107081	D	black	
	4109810	D	black	

Dept 10				15 x 105
	3005747	B	orange	
	3005741	B	red	
	4281516	A	dark stone	
	4210752	A	dark stone	
	4211050	B	dark stone	
	4211086	C	dark stone	
	4211622	B	light grey	
	4211483	B	light grey	
	4211573	B	light grey	
	4211634	C	light grey	

Dept 11				15 x 95
	4211563	C	light grey	
	4211635	C	light grey	
	4211565	C	light grey	
	4211552	C	light grey	
	4211639	C	light grey	
	4211805	C	light grey	
	4211379	D	light grey	
	4211709	D	light grey	
	4211815	D	light grey	
	4265688	A	light grey	
Dept 12				15 x 25
	4109610	A	clear	
	4186017	B	brick-yellow	
Dept 13 (Assembly of 4265688)				30 x 15
	4265688	A		
Dept 14	Emergency Controls (Back up)			15 x 15

Appendix B

Quantity Listing

Bag Lists	Part Number	Quantity (includes spare parts)
Four tires outside of bags	658126	4
Instruction Manuals		2
Bag 1		
	4111998	2
	4281516	2
	4128555	2
	4144300	2
	4158923	2
	4168114	3
	4210752	2
	4265688	1
	4109610	1
	4193785	4
	373726	1
Bag 2		
	4186017	4
	3005741	3
	3005747	3
	4239601	3
	4211622	16
	4211050	9
	4249040	1
	4211483	5
	4121715	2
	4211573	12
	371126	21

Bag 3

4211634	1
4211563	1
4211635	1
4211565	1
4142543	2
4140430	3
4162857	1
4142822	1
4121667	4
4156980	3
4142236	2
4185662	2
4211552	2
4144283	3
4107783	1
4211086	2
370526	1
370626	1
4211639	7
4211805	5

Bag 4

4107828	8
655826	6
4113805	5
4275389	1
4275333	2
4206482	5
4173987	5
4143093	1
4119474	2
4112203	1
4211379	1
306901	1
4107085	2
4177444	1
4107081	1
4211709	1
4109810	7
4211815	10

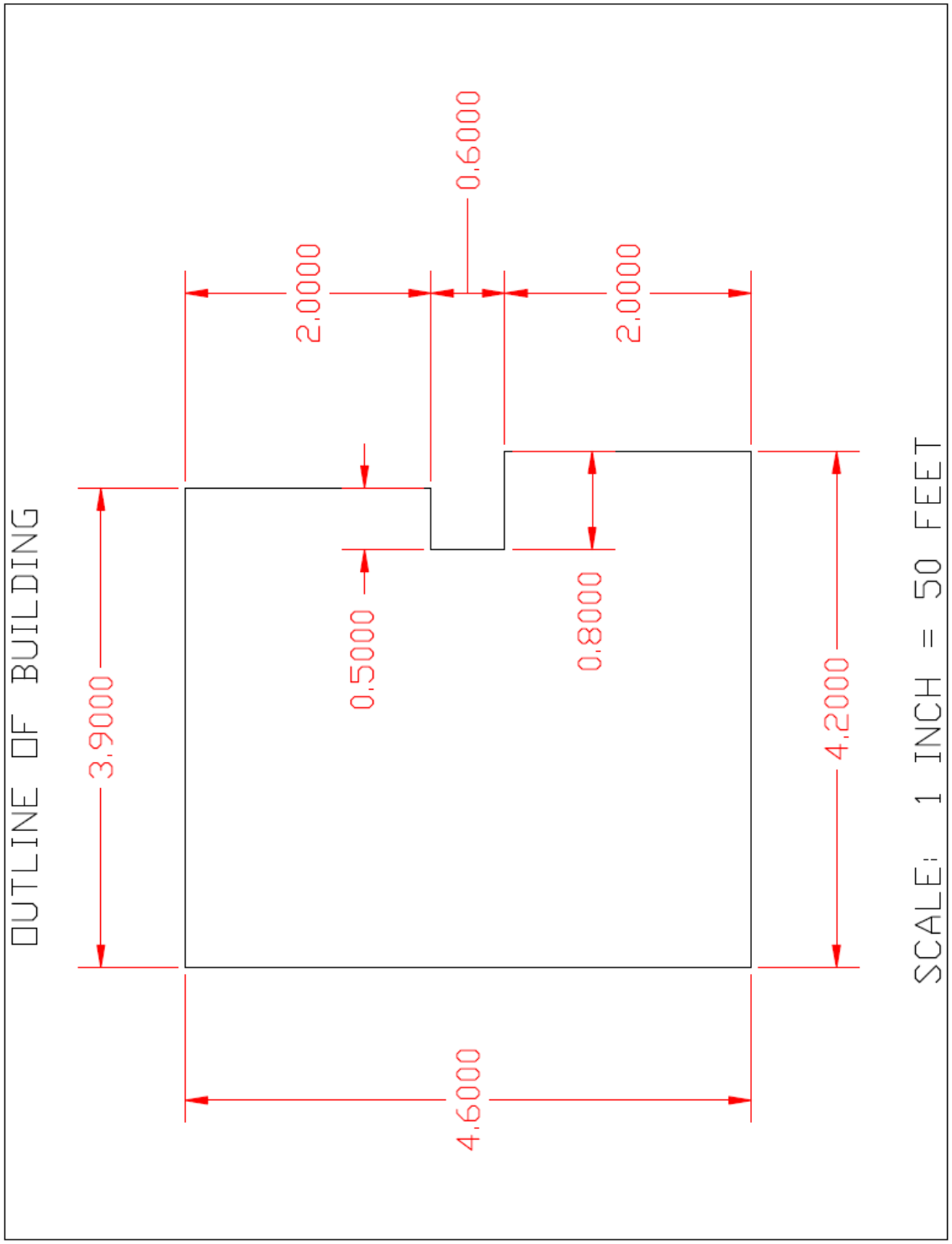
Appendix C

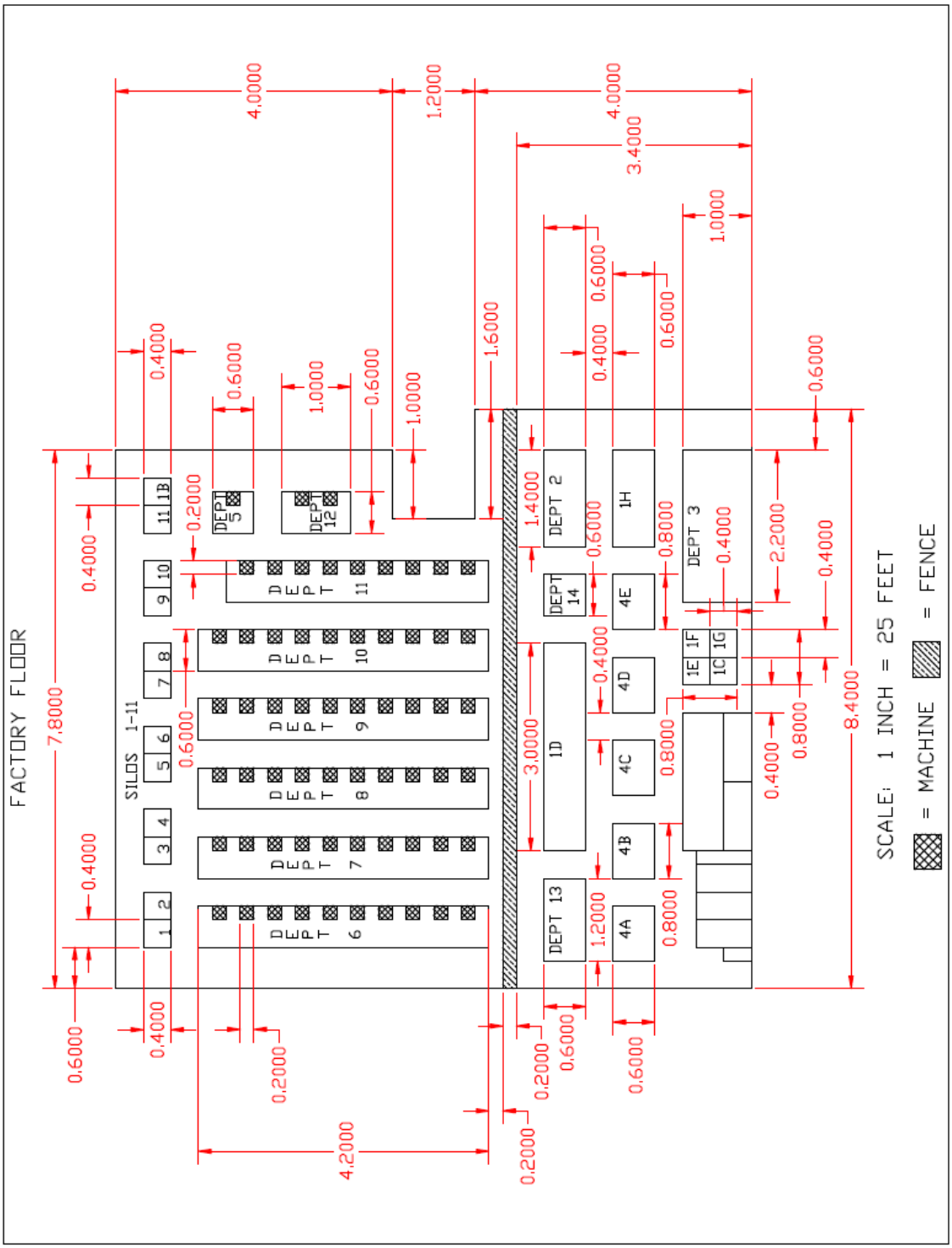
How to Read a Relationship Chart

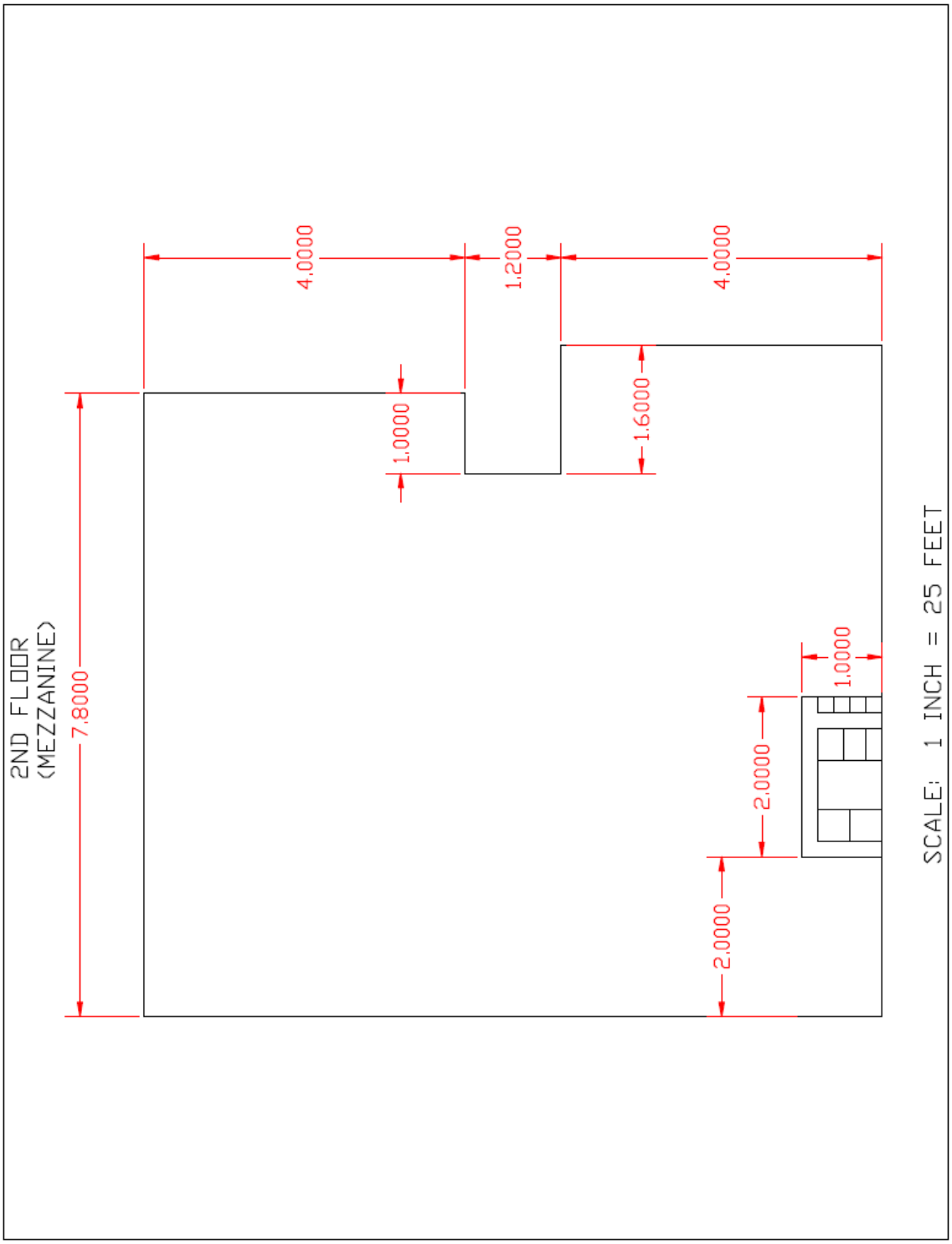
A Relationship Chart evaluates the relationships between all departments. In order to read a Relationship Chart you start with a department, for example, Department 1 Section A. Then you choose which department you want to see its relationship with, for example, the Offices. You look down the chart diagonally along the line that corresponds with Department 1 Section A until it crosses the diagonal line that corresponds with the Offices, noting the color where the two cross. Then you go to the Chart Key below and determine what that color means. This will tell you if the departments must be near each other, should be near each other, cannot be near each other, etc.

Appendix D

Final layout

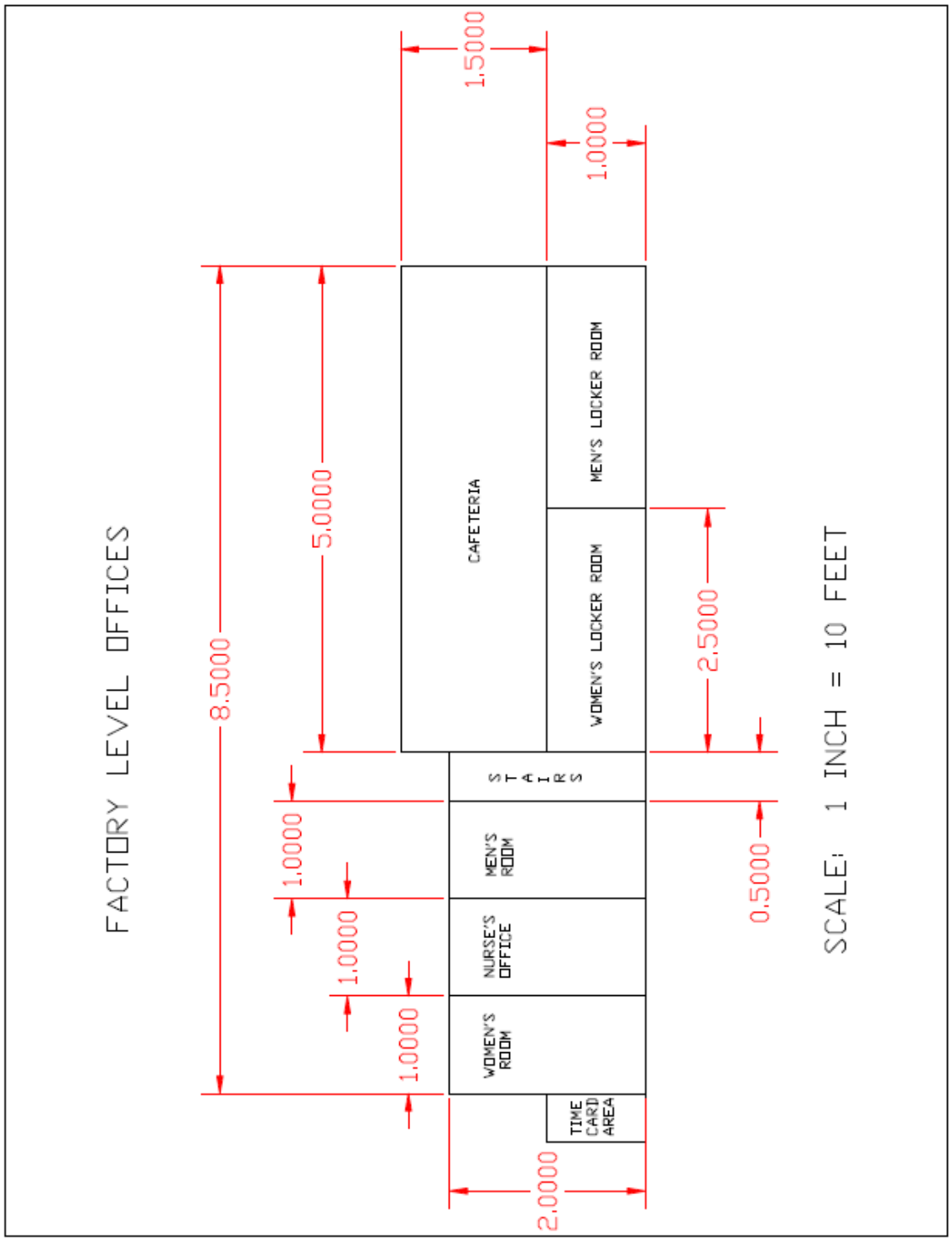


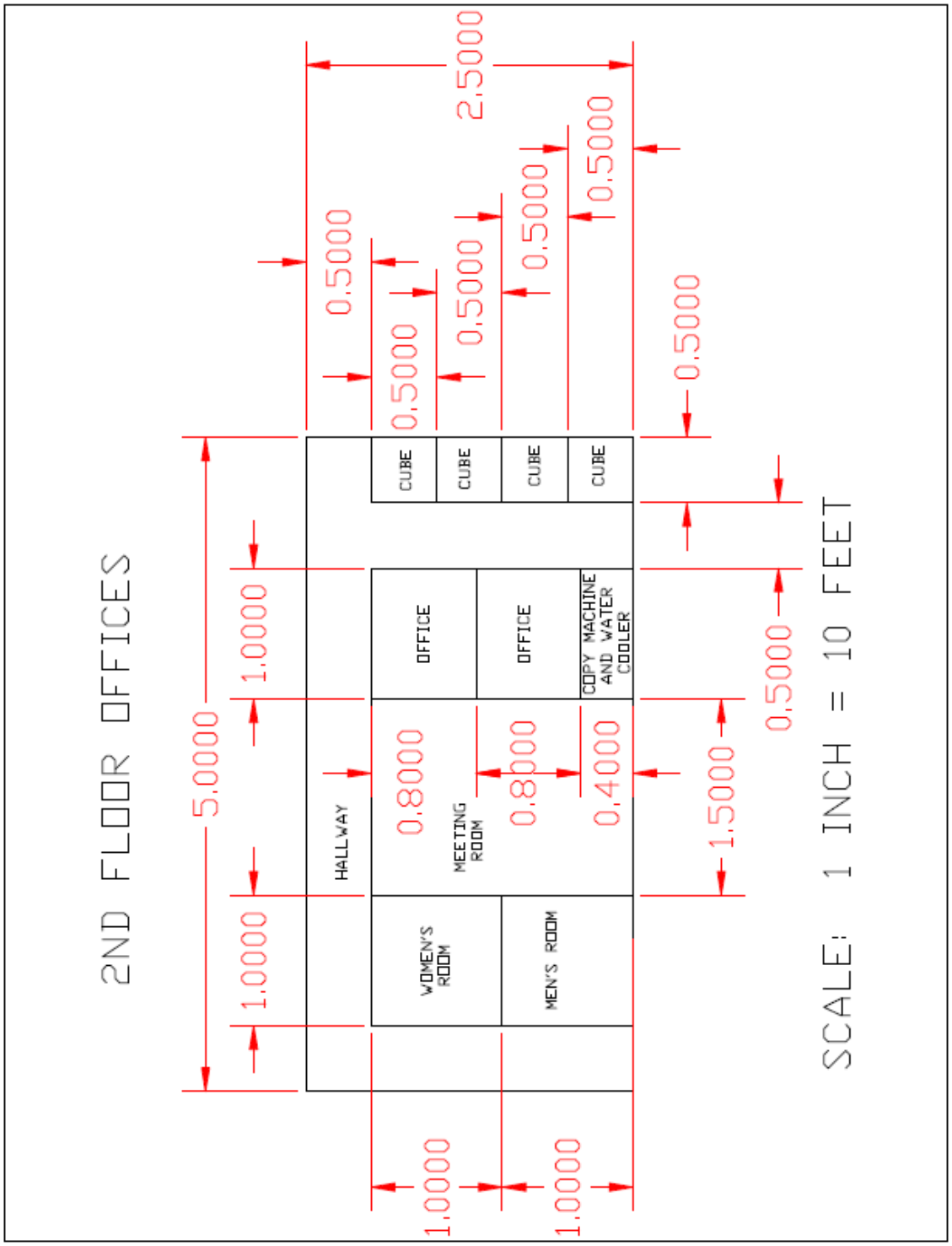

FACTORY FLOOR
SILOS 1-11
SCALE: 1 INCH = 25 FEET
= MACHINE
= FENCE
DEPT 5
DEPT 12
DEPT 11
DEPT 10
DEPT 9
DEPT 8
DEPT 7
DEPT 6
DEPT 2
DEPT 3
DEPT 14
DEPT 13
1D
1H
4E
4D
4C
4B
4A
1E
1F
1C
1G
4.0000
1.2000
3.4000
1.0000
1.6000
0.6000
0.4000
1.4000
0.8000
2.2000
7.8000
8.4000
3.0000
1.2000
4.2000
0.2000


2ND FLOOR
(MEZZANINE)
7.8000
4.0000
1.2000
4.0000
1.0000
1.6000
1.0000
2.0000
2.0000
SCALE: 1 INCH = 25 FEET

Appendix E

Layout of 1st and 2nd Floor Offices

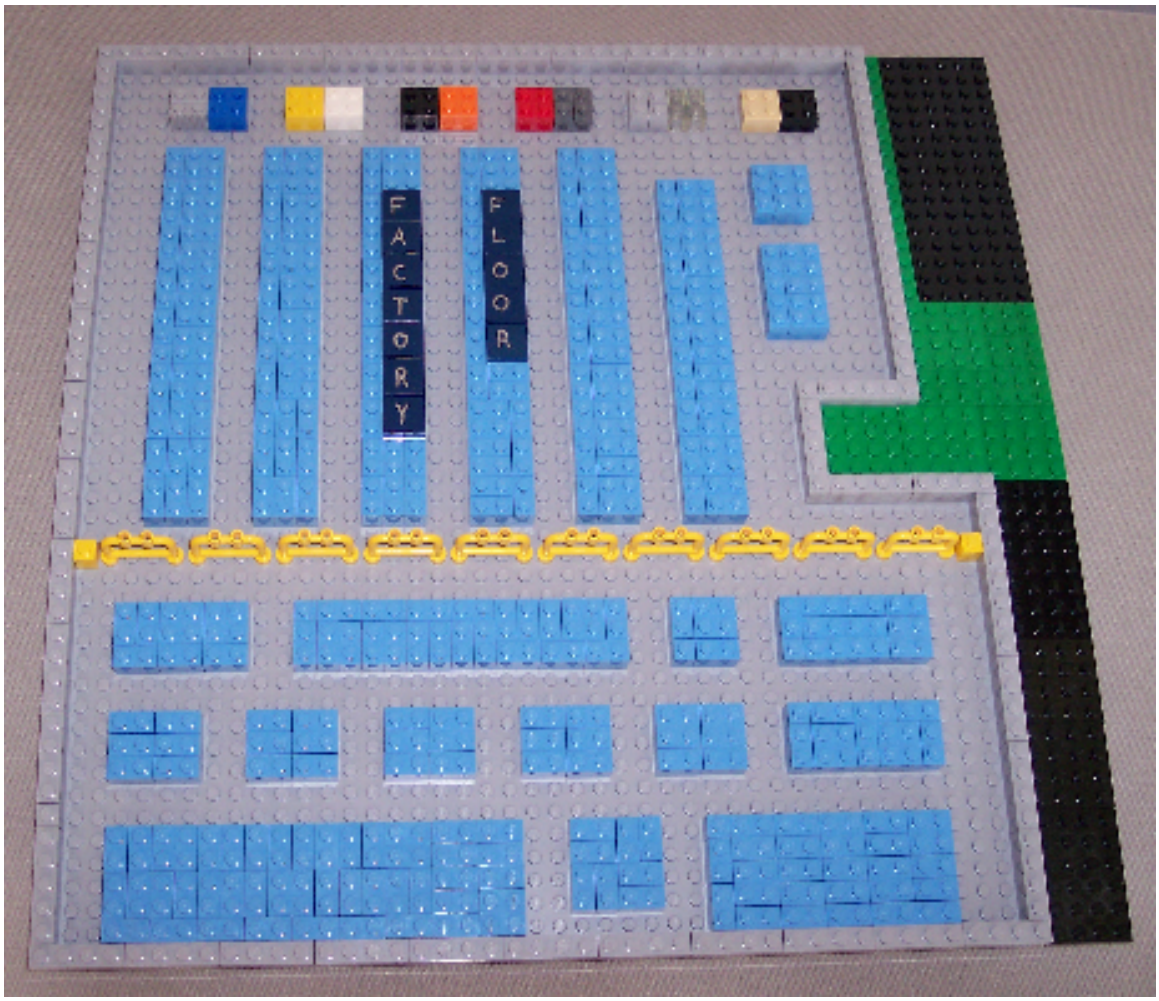



2ND FLOOR OFFICES
SCALE: 1 INCH = 10 FEET
5.0000
1.0000
1.0000
HALLWAY
WOMEN'S ROOM
MEN'S ROOM
MEETING ROOM
0.8000
0.8000
0.4000
OFFICE
OFFICE
COPY MACHINE AND WATER COOLER
CUBE
CUBE
CUBE
CUBE
0.5000
0.5000
0.5000
0.5000
2.5000
0.5000
1.5000
0.5000
1.0000
1.0000

Appendix F

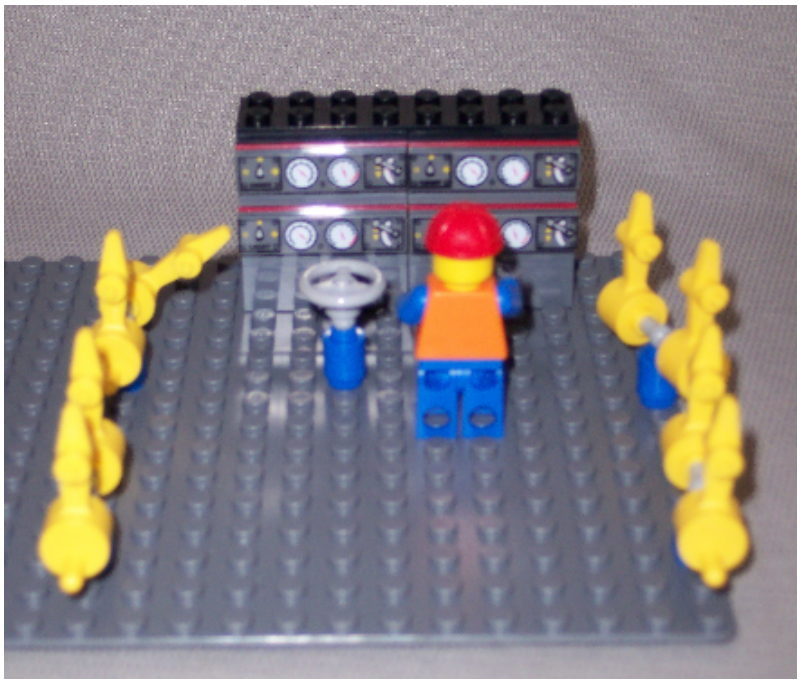
Pictures of Factory Models (Made from Legos)

Factory Floor Layout

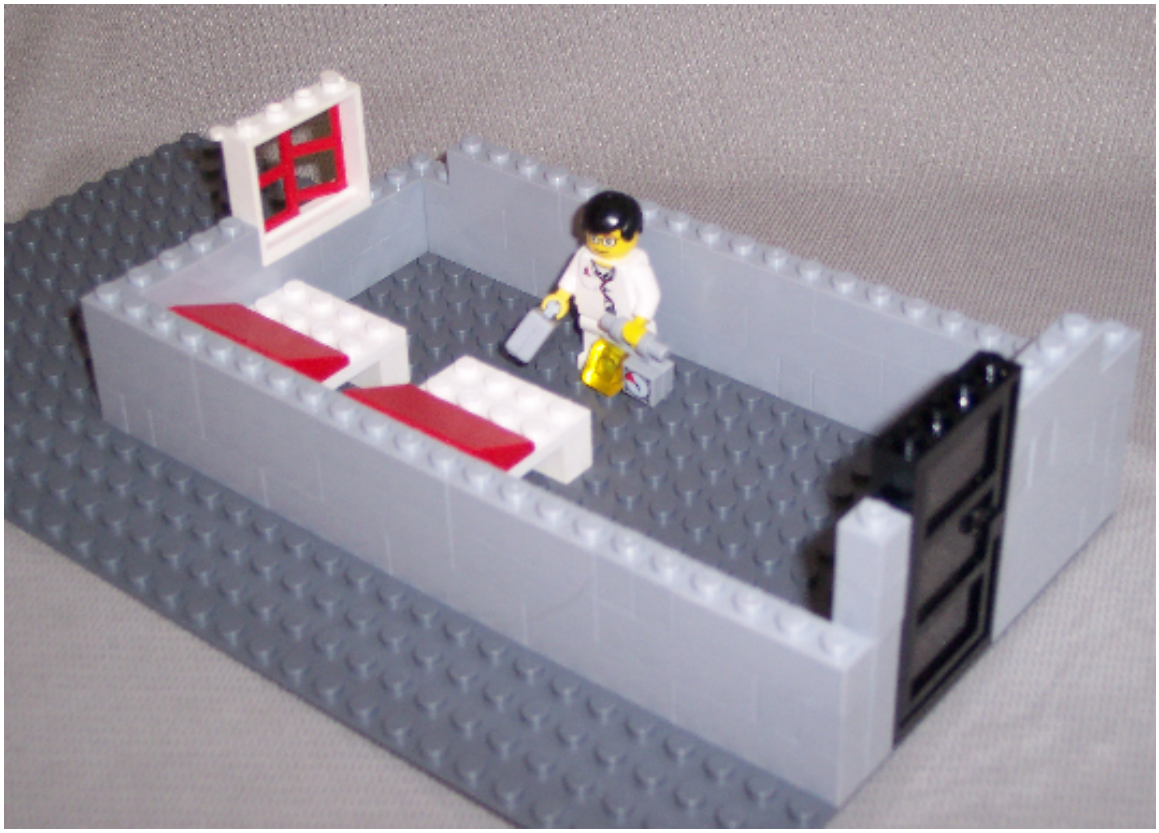


Second Floor (Mezzanine) Layout

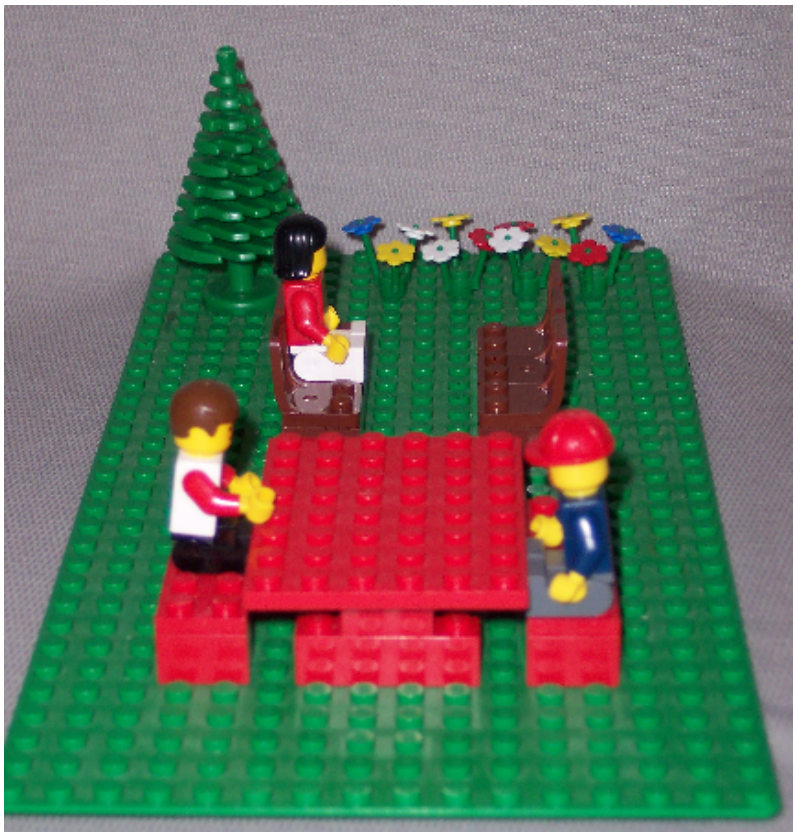
Dept 14 - The Control Room



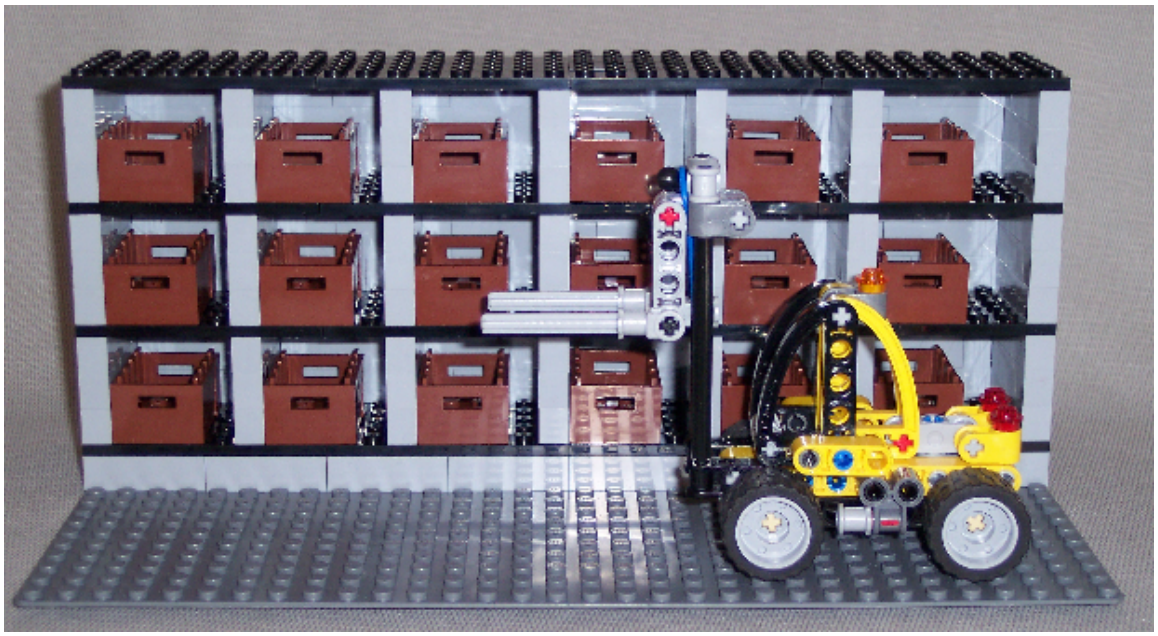
The Factory Nurse



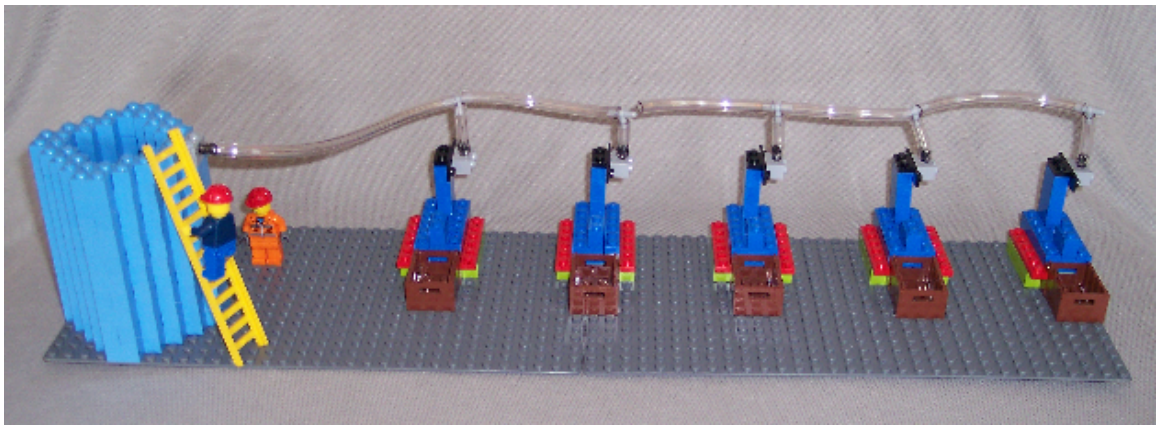
Lunch Time Outside



Dept 1D – Part Storage



Molding



Appendix G

Employee Requirements

-Customer Service Rep
-General Assembly
-Senior Quality Engineer
-Head of Shipping and Receiving
-Molding Operations Manager
-Factory Nurse
-Plant Manager
-Quality Engineer
-Secretary
-Shipping and Receiving
-Shop Foreman

Position:

- Full-time Customer Service Representative

Requirements:

- High School diploma or equivalent
- two year degree desired 1-2 years experience in a customer service related environment preferred
- Minimum 1 year route and/or warehouse experience preferred.
- Knowledge of Windows XP, Microsoft Word, Excel, Outlook
- Ability to interact positively and professionally with customers, employees and vendors
- Ability to communicate with management team on employee issues and ideas for improvements
- Ability to adapt in a fast paced environment
- Ability to work with little or no supervision

Job Description:

- Ensure customers are being serviced as scheduled in a timely and professional manner
- Maintain a 100% customer satisfaction outlook at all times
- Assist with local store marketing and sales as needed
- Perform other duties and responsibilities as assigned

Source:
http://jobview.monster.com/GetJob.aspx?JobID=68809502&JobTitle=Customer+Service+Representative+-+Customer+Service+Representative&q=customer+service&brd=1&cy=US&vw=b&AVSDM=2008-02-20+15%3a47%3a00&pg=1&seq=1

Position:

- Full-time General Assembly

Requirements:

- High School diploma or equivalent
- Good work ethic
- Able to lift up to 25 lbs.

Job Description:

- Basic assembly of Lego kits

Source:
http://jobview.monster.com/GetJob.aspx?JobID=68772926&JobTitle=ASSEMBLY%2c+PRODUCTION&q=assembly&brd=1&cy=US&vw=b&AVSDM=2008-02-20+04%3a16%3a00&pg=1&seq=45

Position:

- Full-time Senior Quality Engineer

Requirements:

- Bachelor degree in technical discipline such as engineering or a related field. Advanced degree preferred, with 10 years of progressive experience in a Quality function
- Skilled at working within a Total Quality Management (TQM) environment
- Demonstrates a thorough understanding of statistical process control methods, sampling plans and design of experiments
- Supply chain management working knowledge
- Demonstrates a thorough understanding of supplier surveys, supplier qualification, supplier audits and supplier performance measurement.
- Knowledge of drawing review, inspection and tests
- Demonstrates the ability to manage supplier quality system requirements to meet the needs of business objectives, ISO 9000 requirements, and customer requirements
- Work with suppliers to resolve quality issues quickly, communicate supplier quality trends and performance at weekly supplier meetings
- Six Sigma Black Belt certification highly desired

Job Description:

- Design and install quality systems, i.e., quality control, statistical process control (SPC), process sampling, procedures, statistical techniques, and DOE's

- Research suppliers and new sources of products, materials and components
- Perform technical peer review of new designs and processes
- Qualify new sources of products, materials, and components
- Develop and improve relationships with suppliers and subcontractors
- Approve methods for product, process and system audits
- Review yield, performance, and other statistical trend analysis and approve recommended product/process improvements
- Manage major subcontracts
- Designs or specifies inspection and testing mechanisms and equipment
- Ensure that production output quality meets or exceeds customer expectations
- Oversee/conduct internal audits of systems, processes, products
- Train personnel in RCCA and Quality processes and procedures
- Lead root cause analysis efforts to correct customer quality issues
- Establish, document, and maintain local Quality processes and procedures
- Lead ISO system developments i.e., documents, forms, establish procedures, prepare quality manual
- Prevent and respond to safety challenges
- Oversee document control process
- Serve as effective link between quality team and other teams
- Develop methods for and perform product, process, and system audits
- Assist and track departmental goal achievement with the Supplier Quality Manager
- Perform other duties as assigned

Source:
http://jobview.monster.com/GetJob.aspx?JobID=67763662&JobTitle=QUALITY+-+Senior+Quality+Engineer+-+Supplier+Quality+and+Development&q=senior+quality&brd=1&cy=US&vw=b&AVSDM=2008-02-08+11%3a10%3a00&pg=1&seq=3

Position:

- Full-time Head of Shipping and Receiving

Requirements:

- Responsible to oversee the loading and shipping of all out-going orders
- Ensure that quantities are correct and that the product meets the quality requirements
- Responsible for ensuring that all paperwork (orders, bills of lading, reports, etc.) is properly filled out and that the information is accurate
- Responsible for implementing the Safety procedures
- Ensure that all forklift operators are properly trained and certified
- Responsible for ensuring that the warehouse is kept clean and organized at all times
- Responsible for coordinating production materials shipments
- Other administrative duties are required

Job Description:

- Bilingual in both English and Spanish
- Management experience at least 2 years
- Must have forklift training experience
- OSHA Regulations experience
- Must be a self-starter and self-sufficient
- Good verbal and written communication skills
- Computer skills required.

Source:
http://jobview.monster.com/GetJob.aspx?JobID=68349529&JobTitle=Shipping+%26+Recieving+Suppervisor&q=shipping+aqnd+recieving&brd=1&cy=US&vw=b&AVSDM=2008-02-12+15%3a47%3a00&pg=1&seq=3

Position:

- Full-time Molding Operations Manager

Requirements:

- High school diploma or equivalent
- Two and a half years of previous experience as an Injection Molding Technician

Job Description:

- Mold set up, changing and cleaning
- Dealing with quality issues related to molding
- Basic maintenance of molding machines

Source:
http://jobview.monster.com/GetJob.aspx?JobID=67977325&JobTitle=Injection+Molding+Shift+Supervisor&q=molding+supervisors&brd=1&cy=US&vw=b&AVSDM=2008-01-30+15%3a20%3a00&pg=1&seq=29

Position:

- Full-time Factory Nurse

Requirements:

- LPN or RN license
- 2-5 years experience in an industrial setting
- Excellent organizational and communication skills

Job Description:

- Onsite treatment for work-related injuries using local occupational health clinic protocols
- Case management of workers compensation claims:

  Following all work injuries from point of injury to recovery

  Maintain communication between associates, management, third party administrator, and healthcare providers.

  Ensure proper processing of claims

  Assist in implementation of transitional work program

  Participation in Safety and Ergonomics Teams

- Health promotion including active participation and direction in F&P America Wellness initiatives: Health Fair, smoking cessation, exercise/fitness, weight control, stress management, nutrition, health screenings, etc.
- OSHA and other regulatory compliance program assistance including ergonomics and control of workplace hazards

Source:
http://jobview.monster.com/GetJob.aspx?JobID=68292022&JobTitle=Occupational+Nurse&q=manufacturing+nurse&brd=1&cy=US&vw=b&AVSDM=2008-02-07+13%3a54%3a00&pg=1&seq=25

Position:

- Full-time Plant Manager

Requirements:

- Bachelor's or Master's Degree in Engineering or Operations Management strongly preferred
- 6-10 years of plant management experience, with the proven ability to oversee plant operations, maintenance, policies, procedures & production goals, preferably in the high power electronics industry
- Strong TQM and LEAN experience
- Must be able to create and use spread sheets and graphs
- Candidate must have excellent skills in short and long term planning for labor, materials, equipment capacities, and overall facility capacities
- Proven ability to function with minimal supervision while also leading others toward project goals through strong supervisory and interpersonal skills, with demonstrated successful experience leading a workforce of 40-60 personnel
- Excellent written and verbal communication skills, organizational skills, and comprehensive computer skills

Job Description:

- Responsible for meeting production requirements in satisfying customers, meeting quality standards, and managing the manufacturing Added Value standards

- Responsible for leading a team of manufacturing employees; ensuring team is motivated, well-trained and working according all applicable safety standards, quality, quality improvement, urgency in manufacturing and employee welfare and advancement
- Support and actively participate in engineering improvement activities
- Audit manufacturing practices, documents and processes including 5S, MAI, Test Documents
- Use improvement methods including QIT as appropriate to move manufacturing to the next level of excellence
- Ensure manufacturing activities and production standards are documented and conform to requirements. Implement, measure, and achieve continuous improvement goals and objectives
- Ensure attainment of manufacturing objectives in the areas of cost, quality, safety, efficiency, and customer service
- Develop plans to enhance efficiency and modify production and inventory control programs to maintain and enhance profitability
- Motivate team, communicating vision and strategy
- Ensure facility compliance to federal, state and local mandates with respect to environmental regulations, employee safety and labor law
- Develop employee incentive programs to improve morale

Source:
http://jobview.monster.com/GetJob.aspx?JobID=67534126&JobTitle=Manufacturing+Manager%2c+Plant+Manager&q=plant+manager&brd=1&cy=US&vw=b&AVSDM=2008-01-18+13%3a23%3a00&pg=1&seq=27

Position:

- Full-time position in Quality

Requirements:

- Ability to read engineering drawings and specifications
- Good communication skills
- Knowledge of Windows XP, Microsoft Word, Excel, Outlook
- Use of dimensional inspection, measuring and test equipment

Job Description:

- Fully understand all QA/QC aspects for each purchase order and for the project maintaining material traceability
- Documentation review and sign-off of supplier and fabricator final documentation inspection reports, as applicable
- Project meetings as needed
- Supervision of contract inspection personnel
- Identifying and resolving any potential or actual issues with suppliers or fabricator as quickly as possible so as not to affect quality and the customer's required delivery schedule

Source:
http://jobview.monster.com/GetJob.aspx?JobID=68712847&JobTitle=SR+Quality+Tech&q=senior+quality&brd=1&cy=US&pg=2&vw=b&AVSDM=2008-02-18+18%3a41%3a00&seq=25

Position:

- Full-time Secretary

Requirements:

- High school diploma or GED equivalent
- Two years of general secretarial experience
- Strong oral and written communication skills
- Good organizational, analytical skills with attention to detail
- Proficient computer skills in Word and Excel and other Microsoft Office applications
- Good interpersonal skills with the ability to relate to staff members at all levels.
- Multi-task oriented
- Professional demeanor, attire; professional phone skills
- Good proof reading skills, ability to operate 10 key calculator
- Ability to work independently and prioritize workflow to meet critical deadlines

Job Description:

- Prepare time cards, biweekly payroll forms, and keep manual records of vacation time
- Responsible for disbursing daily mail
- Assist dispatcher in scheduling deliveries/pick-ups when necessary
- Keep accurate filing system for complete customer base
- Maintain an accurate inventory of office supplies and re-order as needed

- Responsible for complete UPS/Postal System/UPS files
- Maintain business confidentiality relative to such items as payroll, pricing, competition, promotions, inventory, and method of distribution, and client lists

Source:
http://jobview.monster.com/GetJob.aspx?JobID=69465696&JobTitle=Receptionist%2fSecretary+%2f+BF3845&q=secretary&rad=20&rad_units=miles&brd=1&cy=us&vw=b&AVSDM=2008-03-07+09%3a07%3a00&pg=1&seq=17

Position:

- Full-time Shipping and Receiving position

Requirements:

- Good organization skills
- Deadline oriented
- Good time management skills
- Forklift certification preferred

Job Description:

- Receives items by unloading vehicles; accepting deliveries; unpacking containers
- Verifies items received by inspecting condition of items; comparing count/measure of items to purchase order and packing list; noting discrepancies
- Documents items received by recording identifying information
- Transfers orders received by routing or delivering items to requesting department
- Prepares shipments by assembling, packing, protecting, and labeling containers
- Determines method of shipment by examining items to be shipped, destination, route, rate, and time of shipment
- Ships items by verifying identifying information and quantity and condition of items; loading and protecting items
- Documents items shipped by recording identifying information of items and transport information

- Maintains shipping and receiving materials by checking stock to determine inventory level; anticipating needed materials; placing and expediting orders for materials; verifying receipt of materials

Source:
http://jobview.monster.com/GetJob.aspx?JobID=68251011&JobTitle=Shipping+%26+recieving&q=shipping+aqnd+recieving&brd=1&cy=US&vw=b&AVSDM=2008-02-06+17%3a20%3a00&pg=1&seq=5

Position:

- Full-time Shop Foreman

Requirements:

- High School diploma or equivalent. Two year technical degree preferred.
- Minimum 4 years experience in supervisory position
- Excellent communication and problem solving skills

Job Description:

- Supervision of shop employees
- Maintaining shop equipment
- Help to maintain production schedule
- Help with safety programs to minimize injury
- Help keep employee morale up through positive reinforcement

Source:
http://jobview.monster.com/GetJob.aspx?JobID=68571477&JobTitle=Shop+Foreman&q=shop+foreman&brd=1&cy=US&vw=b&AVSDM=2008-02-14+09%3a56%3a00&pg=1&seq=15